

TOWN OF ANDOVER,  
MASSACHUSETTS

MUNICIPAL SERVICES  
DEPARTMENT OF  
PUBLIC WORKS

WATER DIVISION  
(9780 623-8870)

# 2016 Annual Drinking Water Quality Report for Andover, MA

MassDEP Public Water Supply ID # 3009000

## Special points of interest:

- In 2016, Andover's Water Division treated and delivered over 2 billion gallons of water to the Towns of Andover and neighboring North Reading.
- We recently realigned our water meter reading and billing system. Water and sewer bills will now be issued on a quarterly basis to help us monitor water demand and usage in each water supply distribution zone. For more info visit: <http://andoverma.gov/675/Water-Sewer>.

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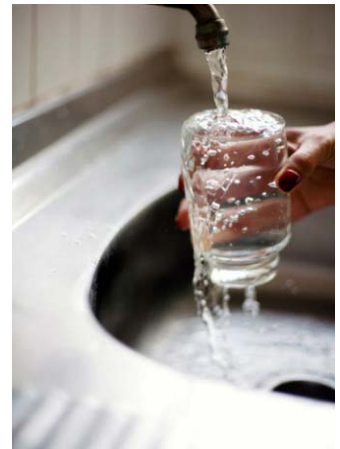
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## About This Report

This consumer confidence report (CCR) is the nineteenth publication to be issued under the Environmental Protection Agency (EPA) regulations requiring annual notification to all consumers about local drinking water sources and water quality information. It is available to all customers, and delivered to the Andover Board of Health, the Massachusetts Department of Public Health (DPH), and the Massachusetts Department of Environmental Protection (DEP). You may obtain an electronic copy on the town's website at <http://andoverma.gov/waterquality>. Hard copies are available at Memorial Hall Library, Town Hall, and the Water Treatment Plant. If you have any questions or

comments about this report, you may contact Jim McSurdy at (978) 623-8870, or by email at [jmcsurdy@andoverma.gov](mailto:jmcsurdy@andoverma.gov). We welcome your interest in the Andover water system.

**Community Participation**  
We encourage public participation on issues concerning the town's drinking water. The dates, times, and locations of Board of Selectmen, Planning Board, and the Board of Health meetings are posted on the town website at: <http://andoverma.gov>.



## Where Your Drinking Water Comes From

Andover's Drinking Water comes from Haggetts Pond and the surrounding 1,422 acres of watershed area. The pond is also supplemented with additional waters from Fish Brook and the Merrimack River. A combination of the three surface water sources is used to pro-

duce up to 18 million gallons of drinking water per day and approximately 2 billion gallons of drinking water per year. Andover retains 14 million gallons of water storage in the distribution system. This storage helps maintain consistent water pressure throughout the 250

miles of underground pipes that deliver drinking water to homes and businesses.





**Andover's Water Treatment Plant—Sedimentation Basins**

## Water Treatment Process

We are proud of the exceptional quality of water that flows to your household or business daily. We treat it very carefully at our water treatment plant to enhance its quality. Source water transferred from Fish Brook and the Merrimack River into Haggetts Pond is drawn into the water treatment plant, which purifies millions of gallons of raw water daily. The water treatment plant process consists of a

series of physical and chemical steps designed to produce a safe and consistent quality product. Fluoride is added to the finished water to about 0.7 ppm to prevent tooth decay and cavities. At this level it is safe, odorless, colorless and tasteless. Visit <http://andoverma.gov/283/water-sewer> to view a virtual tour of the water treatment plant.

To ensure that we provide the highest quality of water

available, your water system is operated by Massachusetts certified operators who oversee the routine operations of our system. The water quality of our system is constantly monitored by us in our on-site laboratory, and by MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

*In addition to MassDEP's Report, Andover's Water Division has prepared a Surface Water Protection Plan. The plan is reviewed and updated every five years.*

## How Our Drinking Water Source is Protected

MassDEP prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving Andover's water system. The purpose of the assessment was to determine the susceptibility of drinking water sources to potential contaminant sources (PCS) so that we can focus protection efforts. The results of the assessment are availa-

ble in the SWAP report which is available online at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3009000.pdf> Andover was assigned a high susceptibility ranking based on the presence of at least one high threat land use within the water supply protection areas. The high threat activities listed by DEP are those that typically

use, produce, or store contaminants of concern, which if managed improperly, are potential sources of contamination. It is important to understand that a release may never occur from the potential source, and the actual risk may be lower than the relative threat ranking assigned to it.



**Fish Brook terminates at the Merrimack River**

## Protecting Our Water Resources

### Andover Water Division's Surface Water Supply Protection Plan

Andover has been an industry leader making continual improvements to its water system. The Water Treatment Plant continues to maintain a comprehensive Surface Water Supply Protection Plan, which was re-

viewed and approved by MassDEP and includes recommendations for watershed monitoring, treatment plant operations, local road salting practices, emergency response planning and preparedness, educational programs and inter-community cooperation on water supply issues. We strive to implement proactive measures

to ensure that drinking water delivered to our customers meets all federal and state drinking water standards. The plan is reviewed and updated every five years.

## What US EPA Has to Say About Contaminants and Health Risks

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for

contaminants in bottled water that must provide the same protection for public health.



## Contaminants That May Be Present in Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

**Microbial contaminants**, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants**, such as salts and metals, can be naturally-occurring or result from urban stormwater runoff, industrial or

domestic wastewater discharges, oil and gas production, mining, and farming. **Pesticides and herbicides** may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

**Organic chemical contaminants** include synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems. **Radioactive contaminants** can be naturally occurring or be the result of oil and gas production and mining activities.

### Other Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the

general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

*Hundreds of water samples are collected and analyzed each year to ensure the highest quality drinking water.*



**Filter beds are the final stage of water treatment.**



**We maintain a fully certified water quality laboratory at the treatment plant.**

## Water Quality Testing Results

During the year, we have taken hundreds of water samples to determine the presence of any biological, inorganic, volatile organic or synthetic organic contaminants. The tables below show only those contaminants that were detected in

the water. The values reported in the tables are the highest level of each detected contaminant as well as the range of levels detected for each contaminant. The water quality information presented in the tables is from the most recent round

of testing done in accordance with the regulations. All data shown was collected during calendar year 2016 unless otherwise noted in the tables.

Regulated Substances						
Parameter (Units)	Maximum Amount Detected <sup>1</sup>	Range of Detection <sup>2</sup>	MCL	MCLG	Violation	Typical Source
Bromate (ppb)	2.2	< 1 – 2.2	10	0	No	By-product of ozone disinfection
Fluoride (ppm)	0.97	0.41— 0.97	4	4	No	Water additive which promotes strong teeth
Nitrate (ppm)	< 1.0	N/A	10	10	No	Run-off from fertilizer use, leaking septic tanks, erosion of natural deposits
Perchlorate (ppb)	0.08	N/A	2	N/A	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
Turbidity (NTU) <sup>3</sup>	0.30	0.04—0.30	TT=1.0 max TT <0.3 95% of time	N/A	No	Soil run-off
Total Coliform (colonies/ml)	0	0	< 5% of samples positive in one month	0	No	Naturally present in the environment, human and animal waste
Heterotrophic Plate Count (cfu/ml)	1311 <sup>4</sup>	0 – 1311	500	N/A	No	Naturally present in the environment
Total Organic Carbon	2.151	0.0850 – 2.151	TT=35-45% removal	N/A	No	Naturally present in the environment
Chlorine (ppm)	0.83	0.02— 0.83	4 (MRDL)	4 (MRDLG)	No	Water additive used to control microbes

<sup>1</sup> We are obligated to report to you the maximum value detected during the analyses of multiple samples of drinking water collected during the past calendar year.

<sup>2</sup> The values listed here are the overall range of results that were recorded during multiple tests conducted in the past calendar year on the drinking water.

<sup>3</sup> Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

<sup>4</sup> The maximum amount detected is not a violation. A chlorine residual was detected in the sample and additional testing demonstrated no presence of E.coli bacteria.

## Water Quality Testing Results, continued

### Chlorine

Chlorine is added to your drinking water for disinfection purposes. Chlorine residual is necessary to maintain disinfection throughout the distribution system. We are required to monitor the concentration of chlorine

residuals entering the distribution system. The use of chlorine and other disinfectants such as ozone reduces the risk of waterborne disease; however, they can also create compounds known as disinfection by-products (DBPs). The EPA

regulates DBPs because they are a potential health risk. Total trihalomethanes (TTHMs) and haloacetic acids (HAAs) are DBPs that form when chlorine is added to the water that contains naturally occurring organic matter.



Disinfection By-Products						
Parameter (Units)	Highest Quarterly Running Average <sup>5</sup>	Range of Detection <sup>6</sup>	MCL	MCLG	Violation	Typical Source
Haloacetic Acids (HAA5) (ppb)	2.9	< 2 – 3.5	60	N/A	No	By-product of chlorination
Total Trihalomethanes (THMs) (ppb)	35	15 - 46	80	N/A	No	By-product of chlorination
Unregulated or Secondary Contaminants (MCL has not been established)						
Parameter (Units)	Date Collected	Result or Range Detected	SMCL	ORSG or Health Advisory	Typical Source	
Aluminum (ppm)	1/4/2016	0.097	0.2	N/A		
Chloride (ppm)	1/4/2016	77	250	N/A		
Manganese <sup>7</sup> (ppb)	1/4/2016	4.6	50	300	Naturally present in the environment	
Sodium <sup>8</sup> (ppm)	monthly	48 – 65	20	N/A	Naturally present in the environment and road salt	
Sulfate (ppm)	1/4/2016	20	250	N/A	Naturally present in the environment	

<sup>5</sup> This is the highest average value calculated for all the locations where THMs and HAAs were sampled during calendar year 2016.

<sup>6</sup> The values in the range are based on individual values, rather than averages.

<sup>7</sup> EPA has established a lifetime health advisory (HA) value of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure.

<sup>8</sup> Sodium is naturally present in the environment and the raw water treated for drinking is at levels above the DEP Guideline of 20 ppm. This value is strictly a guideline and does not imply that a value greater than 20 ppm imposes a risk. The water treatment process does not remove sodium from the water.



## Lead and Copper

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Andover Water Division is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. The Water Division will notify homeowners when lead service lines are found during water main line work or regular maintenance. When your water

has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Also, periodically unscrew the aerator from the faucets and clean out the debris they may have settled in the screens. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

The Andover Water Division is required to conduct lead and copper testing of the distribution system every three years. Testing was conducted during the summer 2016. The values reported in the table below represent the highest concentration found in 90% of the homes sampled. The results demonstrated that levels are well below the EPA's action levels requiring additional corrective measures. The next round of lead and copper sampling is scheduled for the summer 2019.

Parameter (Unit of Measure)	90 <sup>TH</sup> percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	< 5.0	15	0	30	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	< 0.05	1.3	1.3	30	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

## Important Definitions to Help You Understand the Data Tables

**Maximum Contaminant Level (MCL)** is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG's as feasible using the best available treatment technology. **Maximum Contaminant Level Goal (MCLG)** is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. **Maximum Residual Disinfectant Level (MRDL)** is the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant (i.e., chlorine, chloramines, chlorine dioxide) is necessary for control of microbial contaminants. **Maximum Residual Disinfectant Level Goal (MRDLG)** is the level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of disinfectants to control microbial contaminants. **Treatment Technique (TT)** is the required process intended to reduce the level of a contaminant in drinking water. **Action Level (AL)** is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. **90th Percentile** means that out of 10 homes sampled, 9 were at or below the level. **PPM** is parts per million, or milligrams per liter (mg/l). **PPB** is parts per billion, or micrograms per liter (ug/l). **NTU** is Nephelometric Turbidity Units. **ND** signifies Non Detected. **N/A** means Not Applicable.

## Residential Plumbing Cross Connections

The Town delivers safe, high quality water to your home and business. The goal is to keep it that way. Help eliminate plumbing cross connections which are potential connections between a public water supply and a source of possible contamination or pollution. Contamination can occur when water flowing through your faucet or other plumbing fixture is suddenly drawn in the reverse direction due to

a drop in supply pressure of the water distribution system from a water line break, water main repair, or during rapid withdrawal from a fire hydrant. This creates a vacuum which may pull or siphon contaminants or pollutants into the drinking water supply. Andover Water Department recommends that residents install a vacuum breaker on your outside faucet or hose. When filling a hot tub or

swimming pool, do not submerge the hose; instead leave an air gap between the hose and the water level of the pool. Install backflow prevention devices on your lawn irrigation system, and your boiler if public water supply is used to replenish boiler water. Wells and secondary systems are prohibited from connection to the public water supply.



Install a hose bib vacuum breaker on every threaded water fixture. This device is available at most hardware stores or home improvement centers.

## Water Conservation

Water resources are vital for our community. Andover residents and businesses use a significant amount of water for lawn irrigation during peak water demand months. We ask that you take steps to reduce water usage. By consuming less water, you help to preserve our resources. More efficient water use begins with individuals.

For additional information on water conservation, visit the Town's website at <http://andoverma.gov/283/water-sewer>, or check out US EPA's website at <https://www3.epa.gov/watersense>. The Town offers FREE Indoor and Outdoor water conservation kits. Stop by the Water Treatment Plant during normal business hours to pick up these kits.

The summer of 2016 was exceptionally dry for all of New England. A Drought Watch was issued for our region, and watering restrictions were implemented. The Water Division continuously monitors the water demand and levels in our storage tanks and reservoirs to ensure we provide high quality water and fire protection.

**The summer of 2016 was exceptionally dry for New England. Watering restrictions for Andover's largest consumers were required.**

## Stormwater Management

Stormwater can pick up debris, chemicals, dirt and other pollutants and flow untreated directly into a stream, river, wetland or pond used for swimming, fishing, or for drinking water. Polluted stormwater runoff can have many adverse impacts on plants, animals and fish; and also affect your drinking water

sources. **Pet Waste** can be a major source of bacteria and excess nutrients in local waters. When walking your pet, remember to pick up the waste and dispose of it properly. **Recycle or properly dispose of household products** that contain chemicals, such as insecticides, pesticides, paint, solvents and used motor oil.

Dispose of these products at a household hazardous waste collection event.

**Lawn Care:** Excess fertilizer and pesticides applied to lawns and gardens wash off and pollute streams. Use pesticides and fertilizers sparingly. Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.



Stormwater outflow pipe

**Stormwater Issue or Concern?**  
Contact Engineering Dept. (978) 623-8770

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MUNICIPAL SERVICES  
DEPARTMENT OF  
PUBLIC WORKS

WATER DIVISION  
(978) 623-8870

Town of Andover  
Water Treatment Plant  
397 Lowell Street

Phone: 978-623-8870  
Fax: 978-623-8799

Email: dpw-  
treatment@andoverma.gov

#### Water or Sewer Issues?

Call (978) 623-8860

#### Water Billing Question?

Call (978) 623-8906

#### Need an Irrigation Meter?

Visit the Water Treatment  
Plant Main Office;  
Monday-Friday  
8:00 am—3:30 pm

Check out Water-Sewer  
Division Website!  
[http://andoverma.gov/283/  
Water-Sewer](http://andoverma.gov/283/Water-Sewer)

#### Do you have questions about this document?

Call: (978) 623-8870



## Annual Drinking Water Quality Report

### Haggetts Pond—Your Drinking Water Reservoir

#### Permissible Activities

##### Passive Recreation including:

Walking, Hiking, Jogging, and Biking

**Fishing:** From shoreline or Rowboat only\*

*Must have valid state license*

**Boating:** Rowboats only. \* No Motors of any kind. *Boats must be registered\**

#### Restricted Activities

**No** Swimming, Bathing or Wading. **No** Dogs in the Water.

**No** Hip Waders shall be worn—Fish from shoreline or rowboat only\*.

**No** Ice Fishing,

**No** Ice Skating

**No** Canoes

**No** Kayaks

**No** Windsurfers

**No** Paddleboards

**No** Sailboats

**No** Dogs or other animals may enter the water

*\*Residents may obtain boat registration from the Treasurer's Office located at Town Offices 36 Bartlet Street; but only after obtaining a Mass. State Fishing License.*

### Project Highlights for 2016

#### Pump Replacements

During the spring and fall of 2016, the Water Treatment Plant replaced sets of distribution pumps with more efficient units to lower the energy demand and yield cost savings at the plant. The new pump installations were partially funded by utility incentives from National Grid and a Green Communities competitive grant awarded by the MA



Department of Energy Resources.

#### Steel Water Storage Tanks Maintenance

During the summer and fall of 2016, the interiors and exteriors of two steel water storage tanks were inspected, cleaned and repainted as part of the water distribution and storage maintenance plan. This activity was completed without disruption to water services; and ensures the life of the storage tanks and improves water quality.

#### District Metering Areas

The Water Division realigned the water meter

reading and billing cycles for all customers to match up with the three water system distribution zones in Town. This will help the Water Division monitor water demand and usage within each distribution zone. Customers will now receive their water and sewer bills on a quarterly basis. Please see <http://andoverma.gov/675/water-sewer> for additional information.